Atmospheric Processes of Alternative Transportation Fuels

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Objective

To examine the potential benefits and impacts on air quality of substituting various alternative transportation fuels for gasoline.

Approach

Systems Applications, International will carry out photochemical grid modeling for each of three cities for a hypothetical scenario in which each of three alternative fuels replaces 100% of the gasoline burned in the light-duty fleet. During Phase 1 we will model the use of M85 (85% methanol [MeOH], 15% gasoline), compressed natural gas (CNG), and a projected reformulated gasoline (RFG).

The fleet emissions will be based on high-end estimates of total mobile emissions with speciated emissions based on the latest available data from alternative fuel fleets currently in operation. The photochemical grid modeling will investigate the effects of different fuels on ozone (O_3) and other air quality indicators, and on mobile source toxic distributions.

Accomplishments

This project has just begun. We have completed an extensive and detailed modeling protocol that will be available for internal and external review. Under subcontract to Systems Applications, International, Southwest Research Institute is now assembling and analyzing the latest information on mass and speciated emissions from current test fleets. We have begun to assemble the base case inventories for the model evaluation runs.

Future Direction

Following the modeling protocol, we will assemble the inventory and evaluate the model. We will then project next year's data and run the model to compare the fuels.

Publications

None to date.